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Lotus Notes is a commercial product that empowers individuals and organizations to collaborate and share information [1].Notes enables the easy development of applications such as messaging, document management, workflow, and asynchronous conferencing. Notes applications can be deployed globally, across independent organizations, among a heterogeneous network of loosely coupled computers that range in size from small notebooks to large multi-processor systems.The third major release of Lotus Not ...

**2 The costs and limits of availability for replicated services** Haifeng Yu, Amin Vahdat February 2006 **ACM Transactions on Computer Systems (TOCS)**, Volume 24 Issue 1**Publisher:** ACM PressFull text available:  pdf(718.65 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

As raw system performance continues to improve at exponential rates, the utility of many services is increasingly limited by availability rather than performance. A key approach to improving availability involves replicating the service across multiple, wide-area sites. However, replication introduces well-known trade-offs between service consistency and availability. Thus, this article explores the benefits of dynamically trading consistency for availability using a *continuous consistency* mo ...



Keywords: Availability, continuous consistency, network services, replication, trade-off, upper bound

**3 A simple and efficient implementation of a small database** A. Birrell, M. Jones, E. Wobber November 1987 **ACM SIGOPS Operating Systems Review , Proceedings of the eleventh ACM Symposium on Operating systems principles SOSP '87**, Volume 21 Issue 5**Publisher:** ACM Press

Full text available:  pdf(689.45 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper describes a technique for implementing the sort of small databases that frequently occur in the design of operating systems and distributed systems. We take advantage of the existence of very large virtual memories, and quite large real memories, to make the technique feasible. We maintain the database as a strongly typed data structure in virtual memory, record updates incrementally on disk in a log and occasionally make a checkpoint of the entire database. We recover fr ...

4 [Cautious transaction schedulers with admission control](#)

 Naoki Katoh, Toshihide Ibaraki, Tiko Kameda

June 1985 **ACM Transactions on Database Systems (TODS)**, Volume 10 Issue 2

Publisher: ACM Press

Full text available:  pdf(1.92 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We propose a new class of schedulers, called cautious schedulers, that grant an input request if it will not necessitate any rollback in the future. In particular, we investigate cautious WRW-schedulers that output schedules in class WRW only. Class WRW consists of all schedules that are serializable, while preserving the write-read and read-write conflict, and is the largest polynomially recognizable subclass of serializable schedules currently known. It i ...

5 [The intrinsic problems of structural heterogeneity and an approach to their solution](#)

Theo Härdter, Günter Sauter, Joachim Thomas

April 1999 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 8 Issue 1

Publisher: Springer-Verlag New York, Inc.

Full text available:  pdf(132.99 KB) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

This paper focuses on the problems that arise when integrating data from heterogeneous sources in a single, unified database view. At first, we give a detailed analysis of the kinds of structural heterogeneity that occur when unified views are derived from different database systems. We present the results in a multiple tier architecture which distinguishes different levels of heterogeneity and relates them to their underlying causes as well as to the mapping conflicts resulting from the view de ...

Keywords: Heterogeneity, Legacy systems, Mapping language, Schema integration, Schema mapping, Updatable views

6 [A prototype implementation of archival Intermemory](#)

 Yuan Chen, Jan Edler, Andrew Goldberg, Allan Gottlieb, Sumeet Sobti, Peter Yianilos

August 1999 **Proceedings of the fourth ACM conference on Digital libraries**

Publisher: ACM Press

Full text available:  pdf(287.78 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: Internet, archival storage, digital libraries, distributed algorithms, distributed redundant databases, electronic publishing, erasure-resilient codes, information, self-maintenance

7 [MMConf: an infrastructure for building shared multimedia applications](#)

Terrence Crowley, Paul Milazzo, Ellie Baker, Harry Forsdick, Raymond Tomlinson

September 1990 **Proceedings of the 1990 ACM conference on Computer-supported cooperative work**

Publisher: ACM Press

Full text available: [pdf\(1.21 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

8 An information system based on distributed objects

Michael Caplinger

December 1987 **ACM SIGPLAN Notices , Conference proceedings on Object-oriented programming systems, languages and applications OOPSLA '87**, Volume 22 Issue 12

Publisher: ACM Press

Full text available: [pdf\(1.33 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The Telesophy system is intended to provide transparent access to all of a community's online information. The scale of the system requires that it be distributed across many machines via a network; the multiple types and formats of the information require that it be a multimedia system. We describe a prototype that uses objects to represent, query, display, and edit information. A two-level storage system is used to store the objects on multiple servers; queries are proces ...

9 GPGPU: general purpose computation on graphics hardware

David Luebke, Mark Harris, Jens Krüger, Tim Purcell, Naga Govindaraju, Ian Buck, Cliff Woolley, Aaron Lefohn

August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes GRAPH '04**

Publisher: ACM Press

Full text available: [pdf\(63.03 MB\)](#) Additional Information: [full citation](#), [abstract](#)

The graphics processor (GPU) on today's commodity video cards has evolved into an extremely powerful and flexible processor. The latest graphics architectures provide tremendous memory bandwidth and computational horsepower, with fully programmable vertex and pixel processing units that support vector operations up to full IEEE floating point precision. High level languages have emerged for graphics hardware, making this computational power accessible. Architecturally, GPUs are highly parallel s ...

10 XQBE (XQuery By Example): A visual interface to the standard XML query language

Daniele Braga, Alessandro Campi, Stefano Ceri

June 2005 **ACM Transactions on Database Systems (TODS)**, Volume 30 Issue 2

Publisher: ACM Press

Full text available: [pdf\(2.93 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The spreading of XML data in many contexts of modern computing infrastructures and systems causes a pressing need for adequate XML querying capabilities; to address this need, the W3C is proposing XQuery as the standard query language for XML, with a language paradigm and a syntactic flavor comparable to the SQL relational language. XQuery is designed for meeting the requirements of skilled database programmers; its inherent complexity makes the new language unsuited to unskilled users.In this a ...

Keywords: Human interfaces, XML, XQuery, semi-structured data, visual query languages

11 Decentralized storage systems: Ivy: a read/write peer-to-peer file system

Athicha Muthitacharoen, Robert Morris, Thomer M. Gil, Benjie Chen

 December 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue SI

Publisher: ACM Press

Full text available:  pdf(1.65 MB)

Additional Information: [full citation](#), [abstract](#), [references](#)

Ivy is a multi-user read/write peer-to-peer file system. Ivy has no centralized or dedicated components, and it provides useful integrity properties without requiring users to fully trust either the underlying peer-to-peer storage system or the other users of the file system. An Ivy file system consists solely of a set of logs, one log per participant. Ivy stores its logs in the DHash distributed hash table. Each participant finds data by consulting all logs, but performs modifications by appendi ...

12 GroupLens: applying collaborative filtering to Usenet news

 Joseph A. Konstan, Bradley N. Miller, David Maltz, Jonathan L. Herlocker, Lee R. Gordon, John Riedl

March 1997 **Communications of the ACM**, Volume 40 Issue 3

Publisher: ACM Press

Full text available:  pdf(343.16 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

13 Informed prefetching and caching

 R. H. Patterson, G. A. Gibson, E. Ginting, D. Stodolsky, J. Zelenka

December 1995 **ACM SIGOPS Operating Systems Review , Proceedings of the fifteenth ACM symposium on Operating systems principles SOSP '95**, Volume 29 Issue 5

Publisher: ACM Press

Full text available:  pdf(2.13 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

14 A process-oriented version and configuration management model for

 communications software

Shem J. Ochuodho, Alan W. Brown

May 1991 **Proceedings of the 3rd international workshop on Software configuration management**

Publisher: ACM Press

Full text available:  pdf(1.28 MB) Additional Information: [full citation](#), [references](#), [index terms](#)

15 Equal rights for functional objects or, the more things change, the more they are the

 same

Henry G. Baker

October 1993 **ACM SIGPLAN OOPS Messenger**, Volume 4 Issue 4

Publisher: ACM Press

Full text available:  pdf(2.61 MB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

We argue that intensional *object identity* in object-oriented programming languages and databases is best defined operationally by side-effect semantics. A corollary is that "functional" objects have extensional semantics. This model of object identity, which is analogous to the normal forms of relational algebra, provides cleaner semantics for the value-transmission operations and built-in primitive equality predicate of a programming language, and eliminates the confusion surrounding "ca ...

16 IROn file systems

Vijayan Prabhakaran, Lakshmi N. Bairavasundaram, Nitin Agrawal, Haryadi S. Gunawi,

Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau
October 2005 **ACM SIGOPS Operating Systems Review , Proceedings of the twentieth ACM symposium on Operating systems principles SOSP '05**, Volume 39 Issue 5

Publisher: ACM Press

Full text available:  pdf(323.82 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Commodity file systems trust disks to either work or fail completely, yet modern disks exhibit more complex failure modes. We suggest a new *fail-partial failure model* for disks, which incorporates realistic localized faults such as latent sector errors and block corruption. We then develop and apply a novel *failure-policy fingerprinting* framework, to investigate how commodity file systems react to a range of more realistic disk failures. We classify their failure policies in a new ...

Keywords: IRON file systems, block corruption, disks, fail-partial failure model, fault tolerance, internal, latent sector errors, redundancy, reliability, storage

17 AVANCE: an object management system

Anders Bjornerstedt, Stefan Britts
January 1988 **ACM SIGPLAN Notices , Conference proceedings on Object-oriented programming systems, languages and applications OOPSLA '88**, Volume 23 Issue 11

Publisher: ACM Press

Full text available:  pdf(1.87 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

AVANCE1 is an integrated application development and run-time system. It provides facilities for programming with shared and persistent objects, transactions and processes. The architecture is designed with decentralization in mind by having a large object identifier space and a remote procedure call interface to objects. Emphasis in this paper is on the programming language PAL and its relation with the underlying virtual machine.

18 Brave new topics 3: advanced methods for medical image retrieval & applications:

Data grid for large-scale medical image archive and analysis
H. K. Huang, Aifeng Zhang, Brent Liu, Zheng Zhou, Jorge Documet, Nelson King, L. W. C. Chan
November 2005 **Proceedings of the 13th annual ACM international conference on Multimedia MULTIMEDIA '05**

Publisher: ACM Press

Full text available:  pdf(2.03 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Storage and retrieval technology for large-scale medical image systems has matured significantly during the past ten years but many implementations still lack cost-effective backup and recovery solutions. As an example, a PACS (Picture Archiving and Communication system) in a general medical center requires about 40 Terabytes of storage capacity for seven years. Despite many healthcare centers are relying on PACS for 24/7 clinical operation, current PACS lacks affordable fault-tolerance storage ...

Keywords: PACS, bone age assessment of children, computational services, data grid, fault-tolerance archive, grid computing, image analysis, image data mining

19 Documentation and user interface planning for optical information systems

Stephanie Rosenbaum
June 1986 **Proceedings of the 5th annual international conference on Systems documentation**

Publisher: ACM Press

Full text available:  pdf(760.08 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

From one point of view, I should probably have waited to give this paper at next year's conference. Not many optical-based systems have reached the market yet. I've seen quite a few of the ones that have, and I've talked to some of their authors. But many more are still under development. Even so, I suggested talking about documentation and user-interface planning for optical systems, because I believe communicators can't wait for everyone else to blaze the trail. The products th ...

20 Session 7: OS architecture II: Easing the management of data-parallel systems via adaptation 

 David Petrou, Khalil Amiri, Gregory R. Ganger, Garth A. Gibson
September 2000 **Proceedings of the 9th workshop on ACM SIGOPS European workshop: beyond the PC: new challenges for the operating system**

Publisher: ACM Press

Full text available:  pdf(146.51 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

In recent years we have seen an enormous growth in the size and prevalence of data processing workloads [Fayyad 1998, Gray 1997]. The picture that is becoming increasingly common is depicted in Figure 1. In it, organizations or resourceful individuals provide services via a set of loosely-coupled workstation nodes. The service is usually some form of data-mining like searching, filtering, or image recognition. Clients, which could be machines running web browsers, not only initiate requests, but ...

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